

# A Reliable Internet of Things based Architecture for Oil and Gas Industry

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**Abstract** - Anomaly detection systems deployed for monitoring in oil and gas industries are mostly WSN based systems or SCADA systems which all suffer from noteworthy limitations. WSN based systems are not homogenous or incompatible systems. They lack coordinated communication and transparency among regions and processes. On the other hand, SCADA systems are expensive, inflexible, not scalable, and provide data with long delay. In this paper, a novel IoT based architecture is proposed for Oil and gas industries to make data collection from connected objects as simple, secure, robust, reliable and quick. Moreover, it is suggested that how this architecture can be applied to any of the three categories of operations, upstream, midstream and downstream. This can be achieved by deploying a set of IoT based smart objects (devices) and cloud based technologies in order to reduce complex configurations and device programming. Our proposed IoT architecture supports the functional and business requirements of upstream, midstream and downstream oil and gas value chain of geologists, drilling contractors, operators, and other oil field services. Using our proposed IoT architecture, inefficiencies and problems can be picked and sorted out sooner ultimately saving time and money and increasing business productivity.

**Keywords**- Internet of things based Architecture, Oil & Gas Operations, Reliable Communication, Smart Objects.



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